REMARKS

In view of the above amendments and the following remarks, reconsideration of the outstanding office action is respectfully requested.

The rejection of claims 20–23 under 35 U.S.C. § 103(a) for obviousness over 5,635,352 to Urdea et al ("Urdea") in view of Erdogan et al, Nucleic Acids Research 29(7): 1-7(2001) (Erdogan) and U.S. Patent No. 5,849,544 to Harris ("Harris") is respectfully traversed.

Urdea relates to nucleic acid sandwich assays and, particularly, assays which use amplification multimers to bind more label. Urdea discloses capture probes and capture extenders for hybridizing analyte nucleic acids. However, Urdea does not disclose or suggest a discrimination extender. Further, Urdea does not disclose or suggest a discrimination extender with an unblocked 3′ terminus and a sequence complementary to a sequence on a capture probe and a target nucleic acid molecule where the nucleotide at the 3′ terminus of the discrimination extender is complementary to a single nucleotide polymorphism position of an allele (as set out in (a) and (b) of claim 20). Further, Urdea does not disclose or suggest a discrimination extender with an unphosphorylated 5′ terminus and a sequence complementary to a sequence on a capture probe and a target nucleic acid molecule where the nucleotide at the 5′ terminus of the discrimination extender is complementary to a single nucleotide polymorphism position of an allele (as set out in (b) of claim 20).

Erdogan relates to the detection of mitochondrial SNPs which utilizes oligonucleotide primers which bind to glass slides at their 5′-ends. As discussed throughout Erdogan, targets are amplified by PCR (see specifically, page 2, second column). Further, in particular, the teaching of primers relied on by the PTO (see Figure 1) relate to a polymerase extension method. As such, the primers are utilized for amplifying the targets..

Harris relates to methods of amplification and target detection techniques. As in Erdogan, Harris discloses methods in which amplification of the target nucleic acid is required. Harris does not disclose or suggest a solid support which includes a target nucleic acid molecule which has not been amplified.

One of ordinary skill in the art would not have been motivated to combine Urdea, Erdogan and Harris. As discussed above, Erdogan and Harris relate exclusively to amplifying target sequences. In contrast, Urdea relates to a hybridization assay for unamplified target. Further, as discussed in paragraph 0008 of the application as filed, in cases where the target sequence includes SNPs, the prior art hybridization approach does not work because the differences in thermodynamic stabilities and melting temperatures are too small for effective discrimination. Therefore, one of ordinary skill in the art would not have been motivated to modify Urdea with the primers of Erdogan and/or Harris, because one skilled in the art would not have expected the assay of Urdea to work for such an approach (i.e. detecting SNPs).

Further, in particular, contrary to the position of the PTO as set out in the first paragraph on page 6 of the outstanding office action, it would not have been obvious to one skilled in the art to have applied the primers of Erdogan for detection of polymorphic nucleotides with a reasonable expectation of success, because the primers of Erdogan are utilized in amplification, not detection. Specifically, one of ordinary skill in the art would not have been motivated to replace the capture extenders of Urdea with the primers of Erdogan for two reasons: firstly, because one skilled in the art would not have been motivated to utilize an assay of Urdea to

incorporate a discrimination extender complementary to a SNP, because hybridization assays having more than one capture extender did not work for capturing target sequences containing SNPs and, secondly, because the primers of Erdogan were amplification primers and one of ordinary skill in the art would not have been motivated to utilize amplification primers as discrimination extenders in the assay of the present invention.

In contrast, claims 20—23 of the present application relate to a solid support which includes a target nucleic acid molecule which has not been amplified. As set out in paragraph 0006 of the present application as filed, there is a need for assays that allow for highly sensitive, highly selective detection of nucleic acids directly from genomic DNA, without prior amplification. Further, claims 20—23 relate to a solid support which includes a discrimination extender with a sequence where the nucleotide at the 3' terminus of the discrimination extender is complementary to a single nucleotide polymorphism position of an allele (as set out in (a) and (b) of claim 20) or where the discrimination extender has a sequence where the nucleotide at the 5' terminus of the discrimination extender is complementary to a single nucleotide polymorphism position of an allele (as set out in (b) of claim 20)

In view of the foregoing, applicants submit that this case is in condition for allowance and such allowance is earnestly solicited.

Applicants submit the attached PTO-1449 for consideration. Applicants hereby authorize the Commissioner to charge any fees that may be due to Deposit Account 192179.

Respectfully submitted,

November 5, 2008 — Date

/karla m weyand/

Karla M. Weyand
Registration No. 40,223

Siemens Healthcare Diagnostics Inc
511 Benedict Avenue
Tarrytown, NY 10591
Tel: 914-524-2741